

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claims 1-2 (canceled)

1 Claim 3 (previously presented): A method for forming a ferroelectric capacitor comprising:

providing a dielectric layer over a semiconductor;
forming a barrier layer over said dielectric layer;
forming a first metal layer over said barrier layer;
forming a ferroelectric layer over said first metal layer;
forming a hard-mask layer over said second metal layer; and
etching said second metal layer, said ferroelectric layer, and said first metal layer using a three step plasma process comprising:
a first metal layer etch comprising the gases Cl₂, O₂, N₂, and CO;
a PZT etch comprising the gases BCl₃ and Cl₂; and
a second metal layer etch comprising the gases Cl₂, O₂, N₂, and CO,
wherein said plasma process comprises a PZT etch process comprising the gases BCl₃ and Cl₂ in a range of ratios from 1:4 to 10:1 respectively.

2 Claim 4 (previously presented): The method of claim 3 wherein said first metal layer comprises iridium, said ferroelectric layer comprises PZT, and said second metal layer comprises iridium.

Claim 5 (canceled)

Claim 6 (previously presented): A method for forming a ferroelectric memory cell comprising:

providing a dielectric layer over a semiconductor;
forming a barrier layer over said dielectric layer;
forming a first metal layer over said barrier layer;
forming a ferroelectric layer over said first metal layer;
forming a second metal layer over said ferroelectric layer;
forming a hard-mask layer over said second metal layer;
etching said first metal layer with a plasma process comprising the gases Cl₂, O₂, N₂, and CO; and
etching said ferroelectric layer with a plasma process comprising the gases BCl₃ and Cl₂, wherein said ferroelectric layer etch process further comprises the gases BCl₃ and Cl₂ in a range of ratios from 1:4 to 10:1 respectively.

Claim 7 (original): The method of claim 6 wherein all etch process are performed at temperatures between 200°C and 500°C.

Claim 8 (canceled)

10 Claim 9 (previously presented): The method of claim 6 wherein said first metal layer comprises iridium and said ferroelectric layer comprises PZT.

Claims 10-17 (canceled)

3 Claim 18 (new): The method of claim 3 wherein the N₂ has a flowrate that is less than the flowrate of CO.

4 Claim 19 (new): The method of claim 3 wherein the Cl₂ has a flowrate that is less than the flowrate of CO.

5 Claim 20 (new): The method of claim 3 wherein the N2 has a flowrate that is less than the flowrate of O2.

11 Claim 21 (new): The method of claim 6 wherein the N2 has a flowrate that is less than the flowrate of CO.

12 Claim 22 (new): The method of claim 6 wherein the Cl2 has a flowrate that is less than the flowrate of CO.

8 Claim 23 (new): The method of claim 7 wherein all etch process are performed at temperatures greater than 200°C and less than about 250°C.

9 Claim 24 (new): The method of claim 7 wherein all etch process are performed at temperatures greater than about 450°C and less than 500°C.